

Sarah N. Giddings Lab



Estuarine Processes 2015

SIO 219 Estuarine Processes (section 835965), Winter 2015 (4 units)

[syllabus](#) & course information

Instructor: [Sarah Giddings](#)

Class times: Jan 6 – March 20, T-Th 12:30 – 13:50 **may get changed to 12:00-13:20**

Location: “sea cave” inside of the Eckart building (old library)

Office hours: Mondays 9-11, MESOM 363 (except Jan 12, 19, and Feb 16 Tuesdays 9-11), or [email me](#) to set up an appointment

[full schedule and course materials here](#)

course summary:

This course will cover estuarine and coastal processes. While the bulk of the course will focus on the physical dynamics, topics will include biological, chemical, and ecosystem dynamics and interactions in estuaries and river plumes. The course will cover the following topics: Review of fluid mechanics, open channel flow (turbulence and the bottom boundary layer), tides (origin and propagation in estuaries), stratified turbulence, estuarine classification and types (mixed, fjords, inverse, etc.), tidally averaged dynamics, subtidal time dependence, intratidal variations, lateral processes, dispersion mechanisms, sediment transport, estuarine productivity (including nutrient delivery, eutrophication and oxygen depletion), estuarine ecosystems (benthic, intertidal, fisheries, etc.), river plumes, wind-driven coastal upwelling, and estuarine fronts.

requirements:

While there are no required classes to participate in this class, some introduction to fluid mechanics or physical oceanography is helpful as is introductory calculus. Please check with the instructor if you have concerns about your background but note that this course is intended to be for an interdisciplinary group of students.

credit & homework:

Grades will be based on homework (20%), in-class participation (30%), and a final project + presentation (roughly 50%). The final project will include data analysis and presentation of results from existing estuarine datasets and/or data collected during this class.

references:

Textbooks:

There are many textbooks that are compilations of papers about estuaries but no definitive text for this class. Thus we will be pulling from a variety of texts and papers. Some of particular interest that may be worth purchasing (particularly the first 2 although we may also use some papers from the third):

- Contemporary Issues in Estuarine Physics, 2010, Ed. A Valle-Levinson. Cambridge University Press. Available on-line through UCSD [here](#).
- Estuarine Ecology, 2013, JW Day, BC Crump, WM Kemp, A Yanez-Arancibia. Wiley-Blackwell. Available on-line through UCSD [here](#).
- Treatise on Estuarine and Coastal Science, 2011, Ed. E Wolanski and D McLusky. Elsevier, Inc. Available on-line through USCD [here](#).
- Mixing in Inland and Coastal Waters, 1979, HB Fisher, EJ List, RCY Koh, J Imberger, and NH Brooks. Academic Press.

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CONTACT US

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